

ABSTRACT OF THE DISCLOSURE

Various embodiments of methods and systems of using TEC (Thermal-Diffusion Expanded Core) optical fiber to increase the power handling capabilities of an optical device are disclosed. In one embodiment, an optical device includes a TEC optical fiber that includes a first core. The diameter of the first core is larger at the end of the TEC optical fiber than it is in the unexpanded portion of the TEC optical fiber. The optical device also includes a focusing lens configured to focus light into the end of the TEC optical fiber so that a light spot created by the focused light on a surface of the end of the TEC optical fiber has a light spot diameter that is larger than the diameter of the first core in the unexpanded portion of the TEC optical fiber.